

S644LISTGB80
SEQUENCE LISTING

<110> CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
UNIVERSITE DE MONTPELLIER 2
WEILL Mylène
FORT Philippe
RAYMOND Michel
PASTEUR Nicole

<120> Novel acetylcholinesterase gene responsible for insecticide resistance and applications thereof

<130> F644FR92

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<150> FR0207622

<151> 2002-06-20

<150> FR0213799

<151> 2002-11-05

<160> 129

<170> PatentIn Ver. 2.1

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<213> Anopheles gambiae

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Val Arg Ile Ile Asp Ala Glu Leu Gly Thr Leu Glu His Val His Ser
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Arg His Pro Arg Pro Ala Glu Lys Trp Thr Gly Val Leu Asn Thr Thr
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Cys Leu Tyr Ile Asn Val Val Ala Pro Arg Pro Arg Pro Lys Asn Ala
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 260 265 270
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Thr Pro Gln Arg Ser Leu Ala Ser Gly Arg Phe Lys Lys Thr Glu Ile
370 375 380
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 Gly Ala Thr Pro Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Asn Ser
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 Ile Arg Gly Ile Thr Val Asp Ala Pro Ser Gly Lys Lys Val Asp Val
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 Trp Leu Gly Ile Pro Tyr Ala Gln Pro Pro Val Gly Pro Leu Arg Phe
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 Arg His Pro Arg Pro Ala Glu Lys Trp Thr Gly Val Leu Asn Thr Thr
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 Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp
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 Cys Leu Tyr Ile Asn Val Val Ala Pro Arg Pro Arg Pro Lys Asn Ala
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 Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala
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 Pro Ser Arg Val Thr Leu Phe Gly Glu Ser Ala Gly Ala Val Ser Val
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 Ser Val His Cys Arg His His Asp Ile Gly Ser Ser Val Ala His Gln
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Ala	Phe	Phe	Thr	Pro	Tyr	Ile	Gly	His	Gly	Asp	Ser	Val	Arg	Ile
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Asp	Ala	Glu	Leu	Gly	Thr	Leu	Glu	Arg	Glu	His	Ile	His	Ser	Thr
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Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	Val	Asp	Ala	Trp	Met
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Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	Arg	Phe	Arg	His
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Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	Ala	Thr	Lys	Pro
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Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	Glu	Asp	Cys	Leu
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Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	Asn	Val	Ile	Val
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														Asp

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Ala	Ile	Val	Phe 500	Glu	Tyr	Thr	Asp	Trp 505	Ile	Glu	Pro	Asp	Asn 510	Pro	Asn					
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Ser	Arg	Lys 595	Ile	Met	Arg	Tyr	Trp 600	Ser	Asn	Phe	Ala	Lys 605	Thr	Gly	Asn					
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Leu	Pro	Gln	Leu 660	Val	Ala	Ala	Thr	Ser 665	Asn	Leu	Gln	Val	Thr 670	Pro	Ala					
Pro	Ser	Val 675	Pro	Cys	Glu	Ser	Ser 680	Ser	Thr	Ser	Tyr	Arg 685	Ser	Thr	Leu					
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Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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Page 16

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 Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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 Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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<211> 91

<212> PRT

<213> Anopheles funestus

<400> 16

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 35 40 45
 Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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 Thr Glu Asp Glu Lys Asp Phe Ser Arg Lys Ile
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<210> 17

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<213> Anopheles pseudopunctipennis

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 Tyr Ala Glu Glu Gly Asn Asn Val Tyr Met Tyr Leu Tyr Thr His Arg
 35 40 45
 Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
 50 55 60

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Glu Ile Asn Tyr Val Phe Gly Glu Pro Leu Asn Pro Gly Leu Gly Tyr
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<210> 18

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20 25 30

Tyr Ala Glu Glu Gly Asn Asn Val Tyr Met Tyr Leu Tyr Thr His Arg
35 40 45

Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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Glu Ile Asn Tyr Val Phe Gly Glu Pro Leu Asn Pro Ser Leu Gly Tyr
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Thr Asp Asp Glu Lys Asp Phe Ser Arg Lys Ile
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<210> 19

<211> 91

<212> PRT

<213> Anopheles stephensi

<400> 19

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Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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Glu Ile Asn Tyr Val Phe Gly Glu Pro Leu Asn Pro Ser Leu Gly Tyr
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Thr Asp Asp Glu Lys Asp Phe Ser Arg Lys Ile
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<212> PRT

<213> Anopheles albimanus

<400> 20

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Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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Glu Ile Asn Tyr Val Phe Gly Glu Pro Leu Asn Pro Thr Leu Gly Tyr
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Thr Asp Asp Glu Lys Gly Phe Ser Arg Lys Ile
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<210> 21

<211> 91

<212> PRT

<213> Anopheles nili

<400> 21

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Tyr Ala Glu Glu Gly Asn Asn Val Tyr Met Tyr Leu Tyr Thr His Arg
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Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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Thr Glu Asp Glu Lys Asp Phe Ser Arg Lys Met
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<211> 4209

<212> DNA

<213> Anopheles gambiae

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<211> 2557

<212> DNA

<213> Anopheles gambiae strain KISUMU

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<211> 273

<212> DNA

<213> Culex pipiens strain S-LAB

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<210> 25

<211> 273

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<210> 26

<211> 273

<212> DNA

<213> Aedes aegypti

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<212> DNA

<213> Aedes albopictus

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<210> 28

<211> 273

<212> DNA

<213> Anopheles darlingi

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<211> 273

<212> DNA

<213> Anopheles sundaicus

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<211> 273

<212> DNA

<213> Anopheles minimus

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<210> 31

<211> 273

<212> DNA

<213> Anopheles moucheti

<400> 31

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<212> DNA

<213> Anopheles arabiensis

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<210> 33

<211> 273

<212> DNA

<213> Anopheles funestus

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tacatgtatc tgtacacgca ccgaagcaaa ggcaaccctg ggccgcgctg gaccggcgctc 180
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<211> 24

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<223> Description of artificial sequence:primer

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<211> 585

<212> PRT

<213> Ciona intestinalis

<400> 51

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Tyr Arg Leu Gly Pro Leu Gly Phe Leu Ala Pro Leu Ala Gly Thr Pro
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 Arg Lys Gly Glu Gln Ala Asp Val Asp Val Met Ala Gly His Asn Thr
 305 310 315 320
 Asn Glu Gly Ser Tyr Phe Thr Leu Tyr Thr Val Pro Gly Phe Asn Ile
 325 330 335
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 355 360 365
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 370 375 380
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 385 390 395 400
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 405 410 415
 Leu Tyr His Leu Ser Tyr Arg Leu Ser Asn Asn Pro Trp Pro Ala Trp
 420 425 430
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 485 490 495
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 <213> Ciona savignyi

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 35 40 45
 Pro Asp Val Lys Met Thr Ser Glu Phe Gly Asn Ser Cys Ile Gln Glu
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 Asp Asp Leu Val Phe Gly Asn Phe Thr Gly Gly Ser Gln Met Trp Asn
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 Ser Pro Asn Ala Lys Ser Glu Asp Cys Leu Tyr Leu Asn Val Trp Thr
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 115 120 125
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 Tyr Arg Leu Gly Pro Ile Gly Phe Leu Ala Pro Leu Ala Asp Glu Thr
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 165 170 175
 Arg Asp Asn Ile Arg Glu Phe Gly Gly Asn Pro Asn Asn Val Thr Val
 180 185 190
 Met Gly Glu Ser Ala Gly Ala Ala Ser Ile Gly Leu His Thr Ile Ala
 195 200 205
 Pro Ser Ser Arg Gly Leu Phe Ser Arg Val Ile Leu Gln Ser Gly Asn
 210 215 220
 Gln Met Thr Pro Trp Ser Thr Ile Ser Leu Glu Thr Ser Leu Asn Arg
 225 230 235 240
 Thr Arg Thr Leu Ala Ala Asn Leu Asn Cys Pro Lys Pro Arg Thr Ala
 245 250 255
 Ser Glu Ala Asp Ile Leu Ala Cys Leu Arg Thr His Thr Ala Asn Glu
 260 265 270
 Val Phe Ala Gly Ser Trp Ile Thr Lys Glu Ile Phe Asp Phe Pro Phe
 275 280 285
 Val Pro Val His Gly Thr Thr Phe Leu Pro Glu His Pro His Glu Val
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Ile	Thr	Thr	Asn 340	Ser	Val	Leu	Asn	Arg 345	Arg	Gln	Tyr	Leu	Ala 350	Gly	Val
Asp	Leu	Ser 355	Gly	Leu	Lys	Thr	Asn 360	Thr	Met	Gly	Arg	Ser 365	Ala	Ala	Ala
Phe	Met 370	Tyr	Thr	Asp	Trp	Glu 375	Asn	Leu	Asp	Asn	Glu 380	Leu	Gln	Tyr	Arg
Asp 385	Ala	Val	Asn	Glu	Ile 390	Val	Gly	Asp	Phe	His 395	Val	Val	Cys	Pro	Thr 400
Val	Leu	Val	Ser	Lys 405	Arg	His	Ser	Asn	Ser	Phe	Pro	Asn	Arg	Asn 415	Val
Phe	Leu	Tyr	His 420	Leu	Ser	Tyr	Arg	Val 425	Ser	Thr	Asn	Pro	Trp 430	Pro	Ile
Trp	Met	Gly 435	Val	Met	His	Gly	Tyr 440	Glu	Ile	Glu	Leu	Met 445	Phe	Gly	Thr
Pro	Trp 450	Phe	Gly	Asn	Ser	Lys 455	Phe	Thr	Arg	Gly	Tyr 460	Ser	Asp	Leu	Asp
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Phe	Gly	Asn	Pro	Asn 485	Gly	Leu	Arg	Asn	Gln 490	Asn	Gln	Glu	Leu	Val 495	Ser
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 Ala Glu Pro Trp His Gly Val Leu Asp Ala Thr Arg Leu Pro Pro Ser
 85 90 95
 Cys Ile Gln Glu Arg Tyr Glu Tyr Phe Pro Gly Phe Ala Gly Glu Glu
 100 105 110
 Met Trp Asn Pro Asn Thr Asn Val Ser Glu Asp Cys Leu Tyr Leu Asn
 115 120 125
 Ile Trp Val Pro Thr Lys Thr Arg Leu Arg His Gly Arg Gly Leu Asn
 130 135 140
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 His Gln Ser Lys Gly Gly Leu Ala Met Leu Val Trp Ile Tyr Gly Gly
 165 170 175
 Gly Phe Met Ser Gly Thr Ser Thr Leu Asp Ile Tyr Asn Ala Glu Ile
 180 185 190
 Leu Ala Ala Val Gly Asn Val Ile Val Ala Ser Met Gln Tyr Arg Val
 195 200 205
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 210 215 220
 Glu Asp Ala Pro Gly Asn Met Gly Met Trp Asp Gln Ala Leu Ala Ile
 225 230 235 240
 Arg Trp Leu Lys Glu Asn Ala Lys Ala Phe Gly Gly Asp Pro Asp Leu
 245 250 255
 Ile Thr Leu Phe Gly Glu Ser Ala Gly Gly Ser Ser Val Ser Leu His
 260 265 270
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 275 280 285
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Asp Ala Lys Thr Ile Ser Val Gln Gln Trp Asn Ser Tyr Ser Gly Ile
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 370 375 380
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 385 390 395 400
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 405 410 415
 Lys Phe Leu Glu Ile Met Asn Thr Ile Phe Asn Lys Ala Ser Glu Pro
 420 425 430
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 465 470 475 480
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 545 550 555 560
 Glu Asn Pro Ile Tyr Phe Ile Phe Asn Ala Glu Gly Glu Asp Asp Leu
 565 570 575
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 580 585 590
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 595 600 605
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<210> -56
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 Arg His Leu Ile Leu Cys Ser Leu Gly Leu Tyr Ser Ile Leu Val Gln
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tcg tca tcg tcg tta gct gaa gag gcc acg ctg aat aaa gat tca gat 240
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 65 70 75 80

gca ttt ttt aca cca tat ata ggt cac gga gat tct gtt cga att gta 288
 Ala Phe Phe Thr Pro Tyr Ile Gly His Gly Asp Ser Val Arg Ile Val
 85 90 95

gat gcc gaa tta ggt aca tta gag cgc gag cat atc cat agc act acg 336
 Asp Ala Glu Leu Gly Thr Leu Glu Arg Glu His Ile His Ser Thr Thr
 100 105 110

acc cgg cgg cgt ggc ctg acc cgg agg gag tcc agc tcc gat gcc acc 384
 Thr Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Ser Ser Asp Ala Thr
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ccg Pro	ttc Phe	gtt Val	ccg Pro 420	gtt Val	gtg Val	gac Asp	ggg Gly	gcc Ala 425	ttc Phe	ctc Leu	gat Asp	gag Glu	aca Thr 430	ccg Pro	cag Gln	1296
cgt Arg	tcg Ser	ttg Leu 435	gcc Ala	agc Ser	ggg Gly	cgc Arg	ttc Phe 440	aag Lys	aaa Lys	acg Thr	gac Asp	atc Ile 445	ctg Leu	acc Thr	ggc Gly	1344
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ctg Leu 465	ctc Leu	agg Arg	aaa Lys	gag Glu	gaa Glu 470	ggg Gly	gtc Val	acg Thr	gta Val	aca Thr 475	cgc Arg	gag Glu	gag Glu	ttc Phe	cta Leu 480	1440
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gcc Ala	atc Ile	gtg Val	ttc Phe 500	gag Glu	tac Tyr	acg Thr	gac Asp	tgg Trp 505	atc Ile	gaa Glu	ccg Pro	gac Asp	aac Asn 510	ccg Pro	aac Asn	1536
agc Ser	aac Asn	cgt Arg 515	gac Asp	gag Ala	ctc Leu	gac Asp	aag Lys 520	atg Met	gtc Val	ggg Gly	gat Asp	tat Tyr 525	cac His	ttc Phe	acc Thr	1584
tgc Cys	aac Asn 530	gtg Val	aac Asn	gag Glu	ttc Phe	gcc Ala 535	cag Gln	cgg Arg	tac Tyr	gcc Ala	gag Glu 540	gag Glu	ggc Gly	aac Asn	aat Asn	1632
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agc Ser	cgg Arg	aaa Lys 595	att Ile	atg Met	cga Arg	tac Tyr	tgg Trp 600	tcc Ser	aac Asn	ttt Phe	gcc Ala	aag Lys 605	act Thr	ggc Gly	aat Asn	1824
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Val	Gly	Arg	Gly	Pro	Arg	Leu	Arg	Gln	Cys	Ala	Phe	Trp	Lys	Lys	Tyr	
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Leu	Pro	Gln	Leu	Val	Ala	Ala	Thr	Ser	Asn	Leu	Gln	Val	Thr	Pro	Ala	
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Pro	Ser	Val	Pro	Cys	Glu	Ser	Ser	Ser	Thr	Ser	Tyr	Arg	Ser	Thr	Leu	
		675					680					685				
ctt	cta	ata	gtc	aca	cta	ctt	tta	gta	acg	cgg	ttc	aag	att	taa		2109
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			20					25					30		
Ser	Val	His	Cys	Arg	His	His	Asp	Ile	Gly	Ser	Ser	Val	Ala	His	Gln
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	50					55					60				
Ser	Ser	Ser	Ser	Leu	Ala	Glu	Glu	Ala	Thr	Leu	Asn	Lys	Asp	Ser	Asp
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Ala	Phe	Phe	Thr	Pro	Tyr	Ile	Gly	His	Gly	Asp	Ser	Val	Arg	Ile	Val
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		100						105					110		
Thr	Arg	Arg	Arg	Gly	Leu	Thr	Arg	Arg	Glu	Ser	Ser	Ser	Asp	Ala	Thr
		115					120					125			
Asp	Ser	Asp	Pro	Leu	Val	Ile	Thr	Thr	Asp	Lys	Gly	Lys	Ile	Arg	Gly
	130					135					140				
Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	Val	Asp	Ala	Trp	Met	Gly
	145				150					155					160
Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	Arg	Phe	Arg	His	Pro
			165						170					175	
Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	Ala	Thr	Lys	Pro	Pro
		180						185					190		

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Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	Gly	Asp	Phe	Pro	Gly
		195					200					205			
Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	Glu	Asp	Cys	Leu	Tyr
	210					215					220				
Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	Lys	Asn	Ala	Ala	Val	Met
225					230					235					240
Leu	Trp	Ile	Phe	Gly	Gly	Ser	Phe	Tyr	Ser	Gly	Thr	Ala	Thr	Leu	Asp
				245					250					255	
Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	Asn	Val	Ile	Val	Val
			260					265					270		
Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	Leu	Phe	Leu	Gly	Thr
		275					280					285			
Pro	Glu	Ala	Pro	Gly	Asn	Ala	Gly	Leu	Phe	Asp	Gln	Asn	Leu	Ala	Leu
	290					295					300				
Arg	Trp	Val	Arg	Asp	Asn	Ile	His	Arg	Phe	Gly	Gly	Asp	Pro	Ser	Arg
305					310					315					320
Val	Thr	Leu	Phe	Gly	Glu	Ser	Ala	Gly	Ala	Val	Ser	Val	Ser	Leu	His
				325					330					335	
Leu	Leu	Ser	Ala	Leu	Ser	Arg	Asp	Leu	Phe	Gln	Arg	Ala	Ile	Leu	Gln
			340					345					350		
Ser	Gly	Ser	Pro	Thr	Ala	Pro	Trp	Ala	Leu	Val	Ser	Arg	Glu	Glu	Ala
		355					360					365			
Thr	Leu	Arg	Ala	Leu	Arg	Leu	Ala	Glu	Ala	Val	Asn	Cys	Pro	His	Asp
	370					375					380				
Ala	Thr	Lys	Leu	Ser	Asp	Ala	Val	Glu	Cys	Leu	Arg	Thr	Lys	Asp	Pro
385					390					395					400
Asn	Glu	Leu	Val	Asp	Asn	Glu	Trp	Gly	Thr	Leu	Gly	Ile	Cys	Glu	Phe
				405					410					415	
Pro	Phe	Val	Pro	Val	Val	Asp	Gly	Ala	Phe	Leu	Asp	Glu	Thr	Pro	Gln
			420					425					430		
Arg	Ser	Leu	Ala	Ser	Gly	Arg	Phe	Lys	Lys	Thr	Asp	Ile	Leu	Thr	Gly
		435					440					445			
Ser	Asn	Thr	Glu	Glu	Gly	Tyr	Tyr	Phe	Ile	Ile	Tyr	Tyr	Leu	Thr	Glu
	450					455					460				
Leu	Leu	Arg	Lys	Glu	Glu	Gly	Val	Thr	Val	Thr	Arg	Glu	Glu	Phe	Leu
465					470					475					480
Gln	Ala	Val	Arg	Glu	Leu	Asn	Pro	Tyr	Val	Asn	Gly	Ala	Ala	Arg	Gln
				485					490					495	
Ala	Ile	Val	Phe	Glu	Tyr	Thr	Asp	Trp	Ile	Glu	Pro	Asp	Asn	Pro	Asn
			500					505					510		
Ser	Asn	Arg	Asp	Ala	Leu	Asp	Lys	Met	Val	Gly	Asp	Tyr	His	Phe	Thr
		515					520					525			

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Cys Asn Val Asn Glu Phe Ala Gln Arg Tyr Ala Glu Gly Asn Asn
530 535 540

Val Phe Met Tyr Leu Tyr Thr His Arg Ser Lys Gly Asn Pro Trp Pro
545 550 555 560

Arg Trp Thr Gly Val Met His Gly Asp Glu Ile Asn Tyr Val Phe Gly
565 570 575

Glu Pro Leu Asn Ser Ala Leu Gly Tyr Gln Asp Asp Glu Lys Asp Phe
580 585 590

Ser Arg Lys Ile Met Arg Tyr Trp Ser Asn Phe Ala Lys Thr Gly Asn
595 600 605

Pro Asn Pro Ser Thr Pro Ser Val Asp Leu Pro Glu Trp Pro Lys His
610 615 620

Thr Ala His Gly Arg His Tyr Leu Glu Leu Gly Leu Asn Thr Thr Phe
625 630 635 640

Val Gly Arg Gly Pro Arg Leu Arg Gln Cys Ala Phe Trp Lys Lys Tyr
645 650 655

Leu Pro Gln Leu Val Ala Ala Thr Ser Asn Leu Gln Val Thr Pro Ala
660 665 670

Pro Ser Val Pro Cys Glu Ser Ser Ser Thr Ser Tyr Arg Ser Thr Leu
675 680 685

Leu Leu Ile Val Thr Leu Leu Leu Val Thr Arg Phe Lys Ile
690 695 700

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<212> DNA
<213> Artificial sequence

<220>
<223> Description of artificial sequence:primer

<400> 58
cgactcggac ccactggt

18

<210> 59
<211> 21
<212> DNA
<213> Artificial sequence

<220>
<223> Description of artificial sequence:primer

<400> 59
gttctgatca aacagccccg c

21

<210> 60
<211> 459
<212> DNA
<213> Culex pipiens pipiens strain Espro (R)

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 <221> - CDS
 <222> (3)..(458)

<400> 60
 ag ggc aaa atc cgt gga acg aca ctg gaa gcg cca agt gga aag aag 47
 Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
 1 5 10 15

 gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg 95
 Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
 20 25 30

 ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
 Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
 35 40 45

 aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg 191
 Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
 50 55 60

 ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc 239
 Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
 65 70 75

 tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc 287
 Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
 80 85 90 95

 aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt agc ttc tac tcc 335
 Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser
 100 105 110

 ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag 383
 Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
 115 120 125

 gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
 Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
 130 135 140

 ttt ctc ttc ctg ggc aca ccg gag gca c 459
 Phe Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 61
 <211> 461
 <212> DNA
 <213> Culex pipiens quinquefasciatus strain ProR(S)

<220>
 <221> CDS
 <222> (3)..(458)

<400> 61
 ac aag ggc aaa atc cgt gga acg aca ctg gaa gcg cct agt gga aag 47
 Lys Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys
 1 5 10 15

 aag gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt 95
 Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly
 20 25 30

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ccg ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg	143
Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val	
35 40 45	
ctg aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc	191
Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr	
50 55 60	
gtg ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg	239
Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro	
65 70 75	
ctc tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg	287
Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Pro Arg Pro Arg	
80 85 90 95	
ccc aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac	335
Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr	
100 105 110	
tcc ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg	383
Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser	
115 120 125	
gag gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt	431
Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu	
130 135 140	
ggg ttt ctc ttc ctg ggc aca ccg gag gca	461
Gly Phe Leu Phe Leu Gly Thr Pro Glu	
145 150	

<210> 62

<211> 448

<212> DNA

<213> Culex pipiens pipiens strain S-LAB (S)

<220>

<221> CDS

<222> (3)..(446)

<400> 62

ag ggc aaa atc cgt gga acg aca ctg gaa gcg cct agt gga aag aag	47
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys	
1 5 10 15	

gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg	95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro	
20 25 30	

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg	143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu	
35 40 45	

aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg	191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val	
50 55 60	

ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc	239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu	
65 70 75	

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tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc 287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
80 85 90 95

aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc 335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110

ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggg 431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

ttt ctc ttc ctg ggc ac 448
Phe Leu Phe Leu Gly
145

<210> 63

<211> 459

<212> DNA

<213> Culex pipiens pipiens strain Padova (R)

<220>

<221> CDS

<222> -(3)..(458)

<400> 63

ag ggc aaa atc cgt gga acg aca ctg gaa gcg cca agt gga aag aag 47
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10 15

gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg 95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
20 25 30

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
35 40 45

aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg 191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
50 55 60

ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc 239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
65 70 75

tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc 287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
80 85 90 95

aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt agc ttc tac tcc 335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser
100 105 110

ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
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Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
 130 135 140

ttt ctc ttc ctg ggc aca ccg gag gca c 459
 Phe Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 64
 <211> 463
 <212> DNA
 <213> Culex pipiens pipiens strain Praias (R)

<220>
 <221> CDS
 <222> (1)..(462)

<400> 64

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 Asp Lys Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys
 1 5 10 15

aag gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt 96
 Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly
 20 25 30

ccg ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg 144
 Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val
 35 40 45

ctg aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc 192
 Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr
 50 55 60

gtg ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc 240
 Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro
 65 70 75 80

ctc tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg 288
 Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg
 85 90 95

ccc aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt agc ttc tac 336
 Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr
 100 105 110

tcc ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg 384
 Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser
 115 120 125

gag gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt 432
 Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu
 130 135 140

ggt ttt ctc ttc ctg ggc aca ccg gag gca c 463
 Gly Phe Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 65
 <211> 463
 <212> DNA
 <213> Culex pipiens quinquefasciatus strain Supercar (R)

<220>

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<221> CDS

<222> (1)..(462)

<400> 65

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Asp	Lys	Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	
1				5					10					15		
aag	gtg	gac	gca	tgg	atg	ggc	att	ccg	tac	gcg	cag	ccc	ccg	ctg	ggt	96
Lys	Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	
			20					25					30			
ccg	ctc	cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	144
Pro	Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	
		35					40					45				
ctg	aac	gcg	acc	aaa	cca	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	192
Leu	Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	
	50					55					60					
gtg	ttc	ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccc	240
Val	Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	
65					70					75					80	
ctc	tcg	gag	gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	agg	ccg	agg	288
Leu	Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	
				85					90					95		
ccc	aag	aat	gcc	gct	gtc	atg	ctg	tgg	atc	ttt	ggg	ggt	agc	ttc	tac	336
Pro	Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Ser	Phe	Tyr	
			100					105					110			
tcc	ggg	act	gcc	acg	ttg	gac	gtg	tac	gat	cat	cgg	acg	ctg	gcc	tcg	384
Ser	Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	
		115					120					125				
gag	gag	aac	gtg	atc	gtg	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	432
Glu	Glu	Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	
	130					135					140					
ggt	ttt	ctc	ttc	ctg	ggc	aca	ccg	gag	gca	c						463
Gly	Phe	Leu	Phe	Leu	Gly	Thr	Pro	Glu	Ala							
145					150											

<210> 66

<211> 448

<212> DNA

<213> Culex pipiens pipiens strain Bruges A (S)

<220>

<221> CDS

<222> (3)..(446)

<400> 66

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	Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	
	1				5				10					15		
gtg	gac	gca	tgg	atg	ggc	att	ccg	tac	gcg	cag	ccc	ccg	ctg	ggt	ccg	95
Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	
			20					25					30			
ctc	cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	143
											45					

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Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	
			35					40					45			
aac	gcg	acc	aaa	cca	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	191
Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	
		50					55					60				
ttc	ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccc	ctc	239
Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	
	65					70					75					
tcg	gag	gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	agg	ccg	agg	ccc	287
Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	
	80				85					90					95	
aag	aat	gcc	gct	gtc	atg	ctg	tgg	atc	ttt	ggg	ggt	ggc	ttc	tac	tcc	335
Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	
				100					105					110		
ggg	act	gcc	acg	ttg	gac	gtg	tac	gat	cat	cgg	acg	ctg	gcc	tcg	gag	383
Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	
			115					120					125			
gag	aac	gtg	atc	gtg	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	431
Glu	Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	
		130					135					140				
ttt	ctc	ttc	ctg	ggc	ac											448
Phe	Leu	Phe	Leu	Gly												
					145											
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<211> 457																
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Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	Val	
	1			5					10					15		
gac	gca	tgg	atg	ggc	att	ccg	tac	gcg	cag	cct	ccg	ctg	ggt	ccg	ctc	96
Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	
			20					25					30			
cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	aac	144
Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	
		35					40					45				
gcg	acc	aaa	ccg	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	192
Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	
		50				55					60					
ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	tcg	240
Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	
	65				70					75					80	
gag	gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	cgg	ccc	agg	ccc	aag	288
Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	Lys	

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85	90	95	
aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt agc ttc tac tcc ggg Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly	100	110	336
act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag gag Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu	115	125	384
aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt ttt Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe	130	140	432
ctc ttc ctg ggc aca ccg gag gca c Leu Phe Leu Gly Thr Pro Glu Ala	145	150	457
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<211> 447			
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<213> Culex pipiens quinquefasciatus strain DJI (R)			
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<400> -68			
ggc aaa atc cgt gga acg aca ctg gaa gcg cct agc gga aag aag gtg Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val	1	5	48
gac gca tgg atg ggc att ccg tac gcg cag cct ccg ctg ggt ccg ctc Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu	20	25	96
cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg aac Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn	35	40	144
gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg ttc Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe	50	55	192
ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc tcg Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser	65	70	240
gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc aag Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys	85	90	288
aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt agc ttc tac tcc ggg Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly	100	105	336
act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag gag Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu	115	120	384
aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt ttt Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe	130	135	432

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ctc ttc ctg ggc aca
Leu Phe Leu Gly
145

447

<210> 69

<211> 457

<212> DNA

<213> Culex pipiens quinquefasciatus strain Harare (R)

<220>

<221> CDS

<222> (1)..(456)

<400> 69

ggc aaa atc cgt gga acg aca ctg gaa gcg cct agc gga aag aag gtg 48
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15

gac gca tgg atg ggc att ccg tac gcg cag cct ccg ctg ggt ccg ctc 96
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30

cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg aac 144
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45

gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg ttc 192
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60

ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc tcg 240
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80

gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc aag 288
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95

aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt agc ttc tac tcc ggg 336
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
100 105 110

act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag gag 384
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125

aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt ttt 432
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140

ctc ttc ctg ggc aca ccg gag gca c 457
Leu Phe Leu Gly Thr Pro Glu Ala
145 150

<210> 70

<211> 458

<212> DNA

<213> Culex pipiens quinquefasciatus strain Martinique (R)

<220>

<221> CDS

<222> (1)..(456)

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<400>. 70

ggc	aaa	atc	cgt	gga	acg	aca	ctg	gaa	gcg	cct	agc	gga	aag	aag	gtg	48
Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	Val	
1				5				10						15		
gac	gca	tgg	atg	ggc	att	ccg	tac	gcg	cag	cct	ccg	ctg	ggt	ccg	ctc	96
Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	
			20					25					30			
cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	aac	144
Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	
		35					40					45				
gcg	acc	aaa	ccg	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	192
Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	
	50					55					60					
ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	tcg	240
Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	
65				70					75						80	
gag	gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	cgg	ccc	agg	ccc	aag	288
Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	Lys	
			85					90						95		
aat	gcc	gcc	gtc	atg	ctg	tgg	atc	ttc	ggg	ggt	agc	ttc	tac	tcc	ggg	336
Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Ser	Phe	Tyr	Ser	Gly	
		100					105					110				
act	gcc	acg	ctg	gac	gtg	tac	gac	cac	cgg	acg	ctg	gcc	tcg	gag	gag	384
Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	
		115					120					125				
aac	gtg	atc	gta	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	ttt	432
Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	
	130					135					140					
ctc	ttc	ctg	ggc	aca	ccg	gag	gca	cc								458
Leu	Phe	Leu	Gly	Thr	Pro	Glu	Ala									
145					150											

<210> 71

<211> 447

<212> DNA

<213> Culex pipiens pipiens strain Barriol (R)

<220>

<221> CDS

<222> (3)..(446)

<400> 71

ag	ggc	aaa	atc	cgt	gga	acg	aca	ctg	gaa	gcg	cca	agt	gga	aag	aag	47
	Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	
	1				5				10						15	
gtg	gac	gca	tgg	atg	ggc	att	ccg	tac	gcg	cag	ccc	ccg	ctg	ggt	ccg	95
Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	
			20						25					30		
ctc	cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	143
Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	
			35					40					45			

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aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val 50 55 60	191
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu 65 70 75	239
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro 80 85 90 95	287
aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt agc ttc tac tcc Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser 100 105 110	335
ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu 115 120 125	383
gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly 130 135 140	431
ttt ctc ttc ctg ggc a Phe Leu Phe Leu Gly 145	447
<210> 72	
<211> 447	
<212> DNA	
<213> Culex pipiens pipiens strain Bleuete (S)	
<220>	
<221> CDS	
<222> (3)..(446)	
<400> 72	
ag ggc aaa atc cgt gga acg aca ctg gaa gcg cca agt gga aag aag Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys 1 5 10 15	47
gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro 20 25 30	95
ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu 35 40 45	143
aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val 50 55 60	191
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu 65 70 75	239
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro 80 85 90 95	287

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s644LISTGB80
aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt ggc ttc tac tcc 335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110

ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

ttt ctc ttc ctg ggc a 447
Phe Leu Phe Leu Gly
145

<210> 73
<211> 448
<212> DNA
<213> Culex pipiens pipiens strain Bruges B (S)

<220>
<221> CDS
<222> -(3)..(446)

<400> 73
ag ggc aaa atc cgt gga acg aca ctg gaa gcg cca agt gga aag aag 47
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10

gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg 95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
20 25 30

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
35 40 45

aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg 191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
50 55 60

ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc 239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
65 70 75

tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc 287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
80 85 90 95

aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt ggc ttc tac tcc 335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110

ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

ttt ctc ttc ctg ggc ac 448

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s644LISTGB80

Phe Leu Phe Leu Gly
145

<210> 74
<211> 447
<212> DNA
<213> Culex pipiens pipiens strain Heteren (S)

<220>
<221> CDS
<222> (3)..(446)

<400> 74
ag ggc aaa atc cgt gga acg aca ctg gaa gcg cca agt gga aag aag 47
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10 15
gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg 95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
20 25 30
ctc cgg ttt cga cat cca cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
35 40 45
aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac aca gtg 191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
50 55 60
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc 239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
65 70 75
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc 287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
80 85 90 95
aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt ggc ttc tac tcc 335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110
ggg act gcc acg ttg gac gtg tac gac cat cgg acg ctg gcc tcg gaa 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125
gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140
ttt ctc ttc ctg ggc a 447
Phe Leu Phe Leu Gly
145

<210> 75
<211> 450
<212> DNA
<213> Culex pipiens quinquefasciatus strain Ling (S)

<220>
<221> CDS
<222> (1)..(447)

<400> 75

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cag	ggc	aaa	atc	cgt	gga	acg	aca	ctg	gaa	gcg	cct	agt	gga	aag	aag	48
Gln	Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	
1				5					10					15		
gtg	gac	gcc	tgg	atg	ggc	att	ccg	tac	gcg	cag	ccc	ccg	ctg	ggt	ccg	96
Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	
			20					25					30			
ctc	cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	144
Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	
		35					40					45				
aac	gcg	acc	aaa	ccg	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	192
Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	
	50					55					60					
ttc	ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	240
Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	
65					70					75					80	
tgc	gag	gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	cgg	ccc	agg	ccc	288
Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	
				85					90					95		
aag	aat	gcc	gcc	gtc	atg	ctg	tgg	atc	ttc	ggg	ggt	ggc	ttc	tac	tcc	336
Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	
			100					105					110			
ggg	act	gcc	acg	ctg	gac	gtg	tat	gac	cac	cgg	acg	ctg	gcc	tcg	gag	384
Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	
		115					120					125				
gag	aac	gtg	atc	gta	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	432
Glu	Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	
	130					135					140					
ttt	ctc	ttc	ctg	ggc	aca											450
Phe	Leu	Phe	Leu	Gly												
145																

<210> 76
 <211> 448
 <212> DNA
 <213> Culex pipiens quinquefasciatus strain Mao (S)

<220>
 <221> CDS
 <222> (3)..(446)

<400> 76																
ac	ggc	aaa	atc	cgt	gga	acg	aca	ctg	gaa	gcg	cct	agt	gga	aag	aag	47
Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys		
1				5					10					15		
gtg	gac	gca	tgg	atg	ggc	att	ccg	tac	gcg	cag	ccc	ccg	ctg	ggt	ccg	95
Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	
			20					25					30			
ctc	cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	143
Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	
			35				40					45				
aac	gcg	acc	aaa	ccg	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	191

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100										105					110					
gcc	acg	ctg	gac	gtg	tac	gac	cac	cgg	acg	ctg	acc	tcg	gag	gag	aac	384				
Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Thr	Ser	Glu	Glu	Asn					
		115					120					125								
gtg	atc	gta	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	ttt	ctc	433				
Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	Leu					
		130				135					140									

<210> 78

<211> 448

<212> DNA

<213> Culex torrentium strain Uppsala

<220>

<221> CDS

<222> (3)..(446)

<400> 78

ag	ggc	aaa	atc	cgt	gga	acg	aca	ctg	gaa	gcg	cca	agt	gga	aag	aag	47
	Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	
	1				5				10						15	
gtg	gac	gca	tgg	atg	ggc	att	ccg	tac	gcg	cag	cct	ccg	ctg	ggt	ccg	95
Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	
				20					25					30		
ctt	cgg	ttt	cga	cat	cca	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	143
Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	
			35					40					45			
aac	gcg	acc	aaa	cca	ccc	aac	tcc	tgc	gtc	cag	atc	gtc	gac	acc	gtg	191
Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	
		50					55					60				
ttc	ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccc	ctc	239
Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	
	65					70				75						
tcg	gaa	gac	tgt	ctg	tac	atc	aac	gtt	gtg	gtg	cca	cgg	ccg	agg	ccc	287
Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	
	80				85				90						95	
aag	aat	gcc	gcc	gtc	atg	ctg	tgg	atc	ttc	ggg	ggt	gga	ttc	tac	tcc	335
Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	
				100					105					110		
ggg	acc	gcc	acg	ctg	gac	gtg	tac	gac	cac	cgg	acg	ctg	gcc	tcg	gag	383
Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	
			115					120					125			
gag	aac	gtg	atc	gtg	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	431
Glu	Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	
		130					135					140				
ttt	ctc	ttc	ctg	ggc	ac											448
Phe	Leu	Phe	Leu	Gly												
			145													

<210> 79

<211> 448

<212> DNA

s644LISTGB80

<213> Culex pipiens quinquefasciatus strain Trans (S)

<220>

<221> CDS

<222> (3)..(446)

<400>- 79

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ag ggc aaa atc cgt gga acg aca ctg gaa gcg cct agt gga aag aag      47
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    1          5          10          15

gtg gac gca tgg atg ggc att ccg tac gcg cag cct ccg ctg ggt ccg      95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
          20          25          30

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg     143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
          35          40          45

aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg     191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
          50          55          60

ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc     239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
          65          70          75

tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc     287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
          80          85          90          95

aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc     335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
          100          105          110

ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg acc tcg gag     383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Thr Ser Glu
          115          120          125

gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt     431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
          130          135          140

ttt ctc ttc ctg ggc ac                                           448
Phe Leu Phe Leu Gly
          145

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<210> 80

<211> 412

<212> DNA

<213> Culex pipiens quinquefasciatus strain BED (S)

<220>

<221> CDS

<222> (1)..(411)

<400> 80

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aca ctg gaa gcg cct agt gga aag aag gtg gac gca tgg atg ggc att      48
Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
    1          5          10          15

ccg tac gcg cag cct ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga      96
Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
          50

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s644LISTGB80

20	25	30	
ccc gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa cca ccc aac	Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn	144	
35	40	45	
tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc	Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala	192	
50	55	60	
acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc	Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile	240	
65	70	75	80
aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg	Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu	288	
85	90	95	
tgg atc ttc ggg ggt ggc ttc tac tcc ggg act gcc acg ctg gac gtg	Trp Ile Phe Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val	336	
100	105	110	
tac gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg	Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser	384	
115	120	125	
ctg cag tac cgt gtc gca agt ctt ggt t	Leu Gln Tyr Arg Val Ala Ser Leu Gly	412	
130	135		
<210> 81			
<211> 437			
<212> DNA			
<213> Culex pipiens quinquefasciatus strain BSQ (S)			
<220>			
<221> CDS			
<222> (3)..(434)			
<400> 81			
ag ggc aaa atc cgt gga acg aca ctg gaa gcg cct agt gga aag aag	Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys	47	
1	5	10	15
gtg gac gcc tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg	Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro	95	
20	25	30	
ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg	Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu	143	
35	40	45	
aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg	Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val	191	
50	55	60	
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc	Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu	239	
65	70	75	
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc	Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro	287	
80	85	90	95

s644LISTGB80

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aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc 335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110

ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggg 431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

ttt ctc 437
Phe

<210> 82
<211> 414
<212> DNA
<213> Culex pipiens quinquefasciatus strain Brazza (S)

<220>
<221> CDS
<222> -(2)..(412)

<400> 82
a ctg gaa gcg cct agt gga aag aag gtg gac gcc tgg atg ggc att ccg 49
Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
1 5 10 15

tac gcg cag ccc ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga ccc 97
Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro
20 25 30

gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa ccg ccc aac tcc 145
Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser
35 40 45

tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc acc 193
Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr
50 55 60

atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc aac 241
Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn
65 70 75 80

gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg tgg 289
Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp
85 90 95

atc ttc ggg ggt ggc ttc tac tcc ggg act gcc acg ctg gac gtg tac 337
Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr
100 105 110

gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg ctg 385
Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu
115 120 125

cag tac cgt gtc gca agt ctt ggg ttt ct 414
Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135

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<210> 83

s644LISTGB80

<211> 437

<212> DNA

<213> Culex pipiens quinquefasciatus strain Bouake (R)

<220>

<221> CDS

<222> (3)..(434)

<400> 83

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ag ggc aaa atc cgt gga acg aca ctg gaa gcg cct agt gga aag aag      47
  Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
   1          5          10
gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg      95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
                20          25          30
ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg      143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
                35          40          45
aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg      191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
                50          55          60
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc      239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
        65          70          75
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc      287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
   80          85          90          95
aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc      335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
                100          105          110
ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag      383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
                115          120          125
gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt      431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
                130          135          140
ttt ctc
Phe

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<210> 84

<211> 416

<212> DNA

<213> Culex pipiens quinquefasciatus strain Thai (S)

<220>

<221> CDS

<222> (1)..(414)

<400> 84

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aca ctg gaa gcg cct agt gga aag aag gtg gac gcc tgg atg ggc att      48
Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
   1          5          10          15
ccg tac gcg cag ccc ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga      96
Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
                59

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s644LISTGB80

20	25	30	
ccc gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa ccg ccc aac Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn 35 40 45			144
tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala 50 55 60			192
acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile 65 70 75 80			240
aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu 85 90 95			288
tgg atc ttc ggg ggt ggc ttc tac tcc ggg act gcc acg ctg gac gtg Trp Ile Phe Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val 100 105 110			336
tac gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser 115 120 125			384
ctg cag tac cgt gtc gca agt ctt ggg ttt ct Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe 130 135			416
<210> 85			
<211> 426			
<212> DNA			
<213> Culex pipiens quinquefasciatus strain Madurai (S)			
<220>			
<221> CDS			
<222> (3)..(425)			
<400> 85			
ca ctg gaa gcg cct agt gga aag aag gtg gac gca tgg atg ggc att Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile 1 5 10 15			47
ccg tac gcg cag ccc ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg 20 25 30			95
ccc gcc gaa aga tgg acc ggt gtg ctg aac gca acc aaa ccg ccc aac Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn 35 40 45			143
tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala 50 55 60			191
acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile 65 70 75 80			239
aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu 80 85 90 95			287

s644LISTGB80

tgg	atc	ttc	ggg	ggt	ggc	ttc	tac	tcc	ggg	act	gcc	acg	ctg	gac	gtg	335
Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	Gly	Thr	Ala	Thr	Leu	Asp	Val	
			100						105					110		
tac	gac	cac	cgg	acg	ctg	gcc	tcg	gag	gag	aac	gtg	atc	gta	gtt	tcg	383
Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	Asn	Val	Ile	Val	Val	Ser	
			115					120					125			
ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggg	ttt	ctc	ttc	ctg	ggc	a		426
Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	Leu	Phe	Leu	Gly			
		130					135					140				

<210> 86

<211> 423

<212> DNA

<213> Culex pipiens quinquefasciatus strain Recife (R)

<220>

<221> CDS

<222> (1)..(423)

<400> 86

ctg	gaa	gcg	cct	agc	gga	aag	aag	gtg	gac	gca	tgg	atg	ggc	att	ccg	48
Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	
1				5					10					15		
tac	gcg	cag	cct	ccg	ctg	ggt	ccg	ctc	cgg	ttt	cga	cat	ccg	cga	ccc	96
Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	
			20					25					30			
gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	aac	gcg	acc	aaa	ccg	ccc	aac	tcc	144
Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	
		35					40					45				
tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	ggt	gac	ttc	ccg	ggg	gcc	acc	192
Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	
	50				55						60					
atg	tgg	aac	ccg	aac	aca	ccg	ctc	tcg	gag	gac	tgt	ctg	tac	atc	aac	240
Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	
65					70				75						80	
gtg	gtc	gtg	cca	cgg	ccc	agg	ccc	aag	aat	gcc	gcc	gtc	atg	ctg	tgg	288
Val	Val	Val	Pro	Arg	Pro	Arg	Pro	Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	
				85					90					95		
atc	ttc	ggg	ggt	agc	ttc	tac	tcc	ggg	act	gcc	acg	ctg	gac	gtg	tac	336
Ile	Phe	Gly	Gly	Ser	Phe	Tyr	Ser	Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	
			100					105					110			
gac	cac	cgg	acg	ctg	gcc	tcg	gag	gag	aac	gtg	atc	gta	gtt	tcg	ctg	384
Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	Asn	Val	Ile	Val	Val	Ser	Leu	
		115					120					125				
cag	tac	cgt	gtc	gca	agt	ctt	ggt	ttt	ctc	ttc	ctg	ggc				423
Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	Leu	Phe	Leu	Gly				
	130					135					140					

<210> 87

<211> 416

<212> DNA

s644LISTGB80

<213> Culex pipiens quinquefasciatus strain Brésil (S)

<220>

<221> CDS

<222> (3)..(413)

<400> 87

ca	ctg	gaa	gcg	cct	agt	gga	aag	aag	gtg	gac	gca	tgg	atg	ggc	att		47
	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	Val	Asp	Ala	Trp	Met	Gly	Ile		
	1				5					10				15			
ccg	tac	gcg	cag	ccc	ccg	ctg	ggc	ccg	ctc	cgg	ttt	cga	cat	ccg	cga		95
Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	Arg	Phe	Arg	His	Pro	Arg		
				20					25					30			
ccc	gcc	gaa	aga	tgg	acc	ggc	gtg	ctg	aac	gcg	acc	aaa	ccg	ccc	aac		143
Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	Ala	Thr	Lys	Pro	Pro	Asn		
			35					40					45				
tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	ggc	gac	ttc	ccg	ggg	gcc		191
Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	Gly	Asp	Phe	Pro	Gly	Ala		
		50				55						60					
acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	tcg	gag	gac	tgt	ctg	tac	atc		239
Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	Glu	Asp	Cys	Leu	Tyr	Ile		
	65					70					75						
aac	gtg	gtc	gtg	cca	cgg	ccc	agg	ccc	aag	aac	gcc	gcc	gtc	atg	ctg		287
Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	Lys	Asn	Ala	Ala	Val	Met	Leu		
	80				85					90					95		
tgg	atc	ttc	ggg	ggc	ggc	ttc	tat	tcc	ggg	act	gcc	acg	ctg	gac	gtg		335
Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	Gly	Thr	Ala	Thr	Leu	Asp	Val		
			100						105					110			
tac	gac	cac	cgg	acg	ctg	gcc	tcg	gag	gag	aac	gtg	atc	gta	gtt	tcg		383
Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	Asn	Val	Ile	Val	Val	Ser		
			115					120					125				
ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggg	ttt	ctc							416
Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe								
		130					135										

<210> 88

<211> 418

<212> DNA

<213> Culex pipiens quinquefasciatus strain Moorea (S)

<220>

<221> CDS

<222> (1)..(417)

<400> 88

aca	ctg	gaa	gcg	cct	agt	gga	aag	aag	gtg	gac	gca	tgg	atg	ggc	att		48
Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys	Val	Asp	Ala	Trp	Met	Gly	Ile		
	1			5					10					15			
ccg	tac	gcg	cag	cct	ccg	ctg	ggc	ccg	ctc	cgg	ttt	cga	cat	ccg	cga		96
Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	Arg	Phe	Arg	His	Pro	Arg		
			20					25					30				
ccc	gcc	gaa	aga	tgg	acc	ggc	gtg	ctg	aac	gcg	acc	aaa	ccg	ccc	aac		144
Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	Ala	Thr	Lys	Pro	Pro	Asn		

s644LISTGB80

35	40	45	
tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala	50 55 60		192
acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile	65 70 75 80		240
aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu	85 90 95		288
tgg atc ttc ggg ggt ggc ttc tac tcc ggg act gcc acg ctg gac gtg Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val	100 105 110		336
tac gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser	115 120 125		384
ctg cag tac cgt gtc gca agt ctt ggg ttt ctc t Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu	130 135		418
<210> 89			
<211> 402			
<212> DNA			
<213> Culex pipiens pipiens strain killcare (S)			
<220>			
<221> CDS			
<222> (1)..(402)			
<400> 89			
agt gga aag aag gtg gac gca tgg atg ggc att ccg tac gcg cag ccc Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro	1 5 10 15		48
ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp	20 25 30		96
acc ggt gtg ctg aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile	35 40 45		144
gtg gac aca gtg ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro	50 55 60		192
aac aca ccc ctc tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro	65 70 75 80		240
agg ccg agg ccc aag aat gcc gct gtc atg ctg tgg atc ttc ggg ggt Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly	85 90 95		288
ggc ttc tac tcc ggg act gcc acg ttg gac gtg tac gat cat cgg acg Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr	100 105 110		336

s644LISTGB80

ctg gcc tcg gag gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc 384
Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val
115 120 125

gca agt ctt ggt ttt ctc 402
Ala Ser Leu Gly Phe Leu
130

<210> 90
<211> 152
<212> PRT
<213> Culex pipiens pipiens strain Espro (R)

<400> 90
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
100 105 110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140
Leu Phe Leu Gly Thr Pro Glu Ala
145 150

<210> 91
<211> 152
<212> PRT
<213> Culex pipiens quinquefasciatus strain ProR(S)

<400> 91
Lys Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
20 25 30
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
35 40 45
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
50 55 60

s644LISTGB80

Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
65 70 75 80
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
85 90 95
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140
Phe Leu Phe Leu Gly Thr Pro Glu
145 150

<210> 92
<211> 148
<212> PRT
<213> Culex pipiens pipiens strain S-LAB (S)

<400> 92
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
100 105 110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140
Leu Phe Leu Gly
145

<210> 93
<211> 152
<212> PRT
<213> Culex pipiens pipiens strain Padova (R)

<400> 93
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15

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Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 94

<211> 154

<212> PRT

<213> Culex pipiens pipiens strain Praias (R)

<400> 94

Asp Lys Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys
 1 5 10 15
 Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly
 20 25 30
 Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val
 35 40 45
 Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr
 50 55 60
 Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro
 65 70 75 80
 Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg
 85 90 95
 Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr
 100 105 110
 Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser
 115 120 125
 Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu
 130 135 140
 Gly Phe Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

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<210> 95

<211> 154

<212> PRT

<213> Culex pipiens quinquefasciatus strain Supercar (R)

<400> 95

Asp Lys Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys
 1 5 10 15
 Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly
 20 25 30
 Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val
 35 40 45
 Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr
 50 55 60
 Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro
 65 70 75 80
 Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg
 85 90 95
 Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr
 100 105 110
 Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser
 115 120 125
 Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu
 130 135 140
 Gly Phe Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 96

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain Bruges A (S)

<400> 96

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110

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Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly
 145

<210> 97
 <211> 152
 <212> PRT
 <213> Culex pipiens quinquefasciatus strain B0 (R)

<400> 97
 Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 98
 <211> 148
 <212> PRT
 <213> Culex pipiens quinquefasciatus strain DJI (R)

<400> 98
 Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
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60

50 55
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
100 105 110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140
Leu Phe Leu Gly
145

<210> 99
<211> 152
<212> PRT
<213> Culex pipiens quinquefasciatus strain Harare (R)

<400> 99
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
100 105 110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140
Leu Phe Leu Gly Thr Pro Glu Ala
145 150

<210> 100
<211> 152
<212> PRT
<213> Culex pipiens quinquefasciatus strain Martinique (R)

<400> 100
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
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1           5           10           15
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
      20      25      30
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
      35      40      45
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
      50      55      60
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
      65      70      75      80
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
      85      90      95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
      100      105      110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
      115      120      125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
      130      135      140
Leu Phe Leu Gly Thr Pro Glu Ala
      145      150

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<210> 101

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain Barriol (R)

<400> 101

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Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1           5           10           15
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
      20      25      30
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
      35      40      45
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
      50      55      60
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
      65      70      75      80
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
      85      90      95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
      100      105      110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
      115      120      125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
      130      135      140
Leu Phe Leu Gly

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145

<210> 102

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain Bleuet (S)

<400> 102

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
100 105 110Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140Leu Phe Leu Gly
145

<210> 103

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain Bruges B (S)

<400> 103

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
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100

105

110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140

Leu Phe Leu Gly
145

<210> 104

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain Heteren (S)

<400> 104

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140

Leu Phe Leu Gly
145

<210> 105

<211> 149

<212> PRT

<213> Culex pipiens quinquefasciatus strain Ling (S)

<400> 105

Gln Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10 15

Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
20 25 30

Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
35 40 45

Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
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55

60

Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
65 70 75 80

Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
85 90 95

Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110

Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

Phe Leu Phe Leu Gly
145

<210> 106

<211> 148

<212> PRT

<213> Culex pipiens quinquefasciatus strain Mao (S)

<400> 106

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140

Leu Phe Leu Gly
145

<210> 107

<211> 144

<212> PRT

<213> Culex pipiens quinquefasciatus strain TemR (S)

<400> 107

Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp
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      1           5           10           15
Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg
      20           25           30
Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala
      35           40           45
Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly
      50           55           60
Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu
      65           70           75           80
Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn
      85           90           95
Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr
      100          105          110
Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Thr Ser Glu Glu Asn
      115          120          125
Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu
      130          135          140

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<210> 108

<211> 148

<212> PRT

<213> Culex torrentium strain Uppsala

<400> 108

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Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
  1           5           10           15
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
      20           25           30
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
      35           40           45
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
      50           55           60
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
      65           70           75           80
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
      85           90           95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
      100          105          110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
      115          120          125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
      130          135          140
Leu Phe Leu Gly
145

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<210> 109

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<211> 148

<212> PRT

<213> Culex pipiens quinquefasciatus strain Trans (S)

<400> 109

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Thr Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly
 145

<210> 110

<211> 137

<212> PRT

<213> Culex pipiens quinquefasciatus strain BED (S)

<400> 110

Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
 1 5 10 15
 Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
 20 25 30
 Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
 35 40 45
 Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala
 50 55 60
 Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
 65 70 75 80
 Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
 85 90 95
 Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val
 100 105 110
 Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
 115 120 125

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Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135

<210> 111

<211> 144

<212> PRT

<213> Culex pipiens quinquefasciatus strain BSQ (S)

<400> 111

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140

<210> 112

<211> 137

<212> PRT

<213> Culex pipiens quinquefasciatus strain Brazza (S)

<400> 112

Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
1 5 10 15

Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro
20 25 30

Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Asn Ser
35 40 45

Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr
50 55 60

Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn
65 70 75 80

Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp
85 90 95

Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr
100 105 110

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Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu
115 120 125

Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135

<210> 113

<211> 144

<212> PRT

<213> Culex pipiens quinquefasciatus strain Bouake (R)

<400> 113

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140

<210> 114

<211> 138

<212> PRT

<213> Culex pipiens quinquefasciatus strain Thai (S)

<400> 114

Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
1 5 10 15

Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
20 25 30

Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
35 40 45

Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala
50 55 60

Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
65 70 75 80

Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
85 90 95

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Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val
 100 105 110
 Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
 115 120 125
 Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135

<210> 115
 <211> 141
 <212> PRT
 <213> Culex pipiens quinquefasciatus strain Madurai (S)

<400> 115
 Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
 1 5 10 15
 Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro
 20 25 30
 Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser
 35 40 45
 Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr
 50 55 60
 Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn
 65 70 75 80
 Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp
 85 90 95
 Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr
 100 105 110
 Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu
 115 120 125
 Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly
 130 135 140

<210> 116
 <211> 141
 <212> PRT
 <213> Culex pipiens quinquefasciatus strain Recife (R)

<400> 116
 Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
 1 5 10 15
 Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro
 20 25 30
 Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser
 35 40 45
 Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr
 50 55 60

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Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn
65 70 75 80
Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp
85 90 95
Ile Phe Gly Gly Ser Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr
100 105 110
Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu
115 120 125
Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly
130 135 140

<210> 117
<211> 137
<212> PRT
<213> Culex pipiens quinquefasciatus strain Brésil (S)

<400> 117
Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
1 5 10 15
Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro
20 25 30
Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser
35 40 45
Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr
50 55 60
Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn
65 70 75 80
Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp
85 90 95
Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr
100 105 110
Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu
115 120 125
Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135

<210> 118
<211> 139
<212> PRT
<213> Culex pipiens quinquefasciatus strain Moorea (S)

<400> 118
Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
1 5 10 15
Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
20 25 30
Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
35 40 45

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Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala
 50 55 60
 Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
 65 70 75 80
 Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
 85 90 95
 Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val
 100 105 110
 Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
 115 120 125
 Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu
 130 135

<210> 119
 <211> 134
 <212> PRT
 <213> Culex pipiens pipiens strain Killcare (S)

<400> 119
 Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro
 1 5 10 15
 Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp
 20 25 30
 Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile
 35 40 45
 Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro
 50 55 60
 Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro
 65 70 75 80
 Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly
 85 90 95
 Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr
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 Ala Ser Leu Gly Phe Leu
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 <212> DNA
 <213> Anopheles gambiae strain YAO

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 gagttgggca cgctcgagca tgtacacagt ggagcaacgc cgcgcgacg cggctctgacg 240
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<212> DNA

<213> Anopheles gambiae strain YAO

<220>

<221> CDS

<222> (1)..(2214)

<400> 121

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atg gtt ccg ctg ggt ctg ctc ggc gtg acc gcg ctg cta cta atc ctg 96
Met Val Pro Leu Gly Leu Leu Gly Val Thr Ala Leu Leu Leu Ile Leu
20 25 30

cca ccc tcc gcg ctg gtg cag ggc cgg cac cac gag ctc aac aat ggt 144
Pro Pro Ser Ala Leu Val Gln Gly Arg His His Glu Leu Asn Asn Gly
35 40 45

gcc gcc atc gga tcg cat cag ctg tcg gct gcc gcc ggt gtt ggc ctt 192
Ala Ala Ile Gly Ser His Gln Leu Ser Ala Ala Ala Gly Val Gly Leu

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60

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cta Leu	cgc Arg	tgg Trp	gtg Val 340	cgg Arg	gac Asp	aac Asn	att Ile	cac His 345	cgg Arg	ttc Phe	ggt Gly	ggt Gly	gat Asp 350	ccg Pro	tcg Ser	1056
cgc Arg	gtg Val	aca Thr 355	ctg Leu	ttc Phe	ggc Gly	gag Glu	agt Ser 360	gcc Ala	ggt Gly	gcc Ala	gtc Val	tcg Ser 365	gtg Val	tcg Ser	ctg Leu	1104
cat His 370	ctg Leu	ctg Leu	tcc Ser	gcc Ala	ctt Leu	tcc Ser 375	cgc Arg	gat Asp	ctg Leu	ttc Phe	cag Gln 380	cgg Arg	gcc Ala	atc Ile	ctg Leu	1152
cag Gln 385	agc Ser	ggc Gly	tcg Ser	ccg Pro	acg Thr 390	gca Ala	ccg Pro	tgg Trp	gca Ala	ttg Leu 395	gta Val	tcg Ser	cgc Arg	gag Glu	gaa Glu 400	1200
gcc Ala	acg Thr	cta Leu	aga Arg	gca Ala 405	ctg Leu	cgg Arg	ttg Leu	gcc Ala	gag Glu 410	gcg Ala	gtc Val	ggc Gly	tgc Cys	ccg Pro 415	cac His	1248
gaa Glu	ccg Pro	agc Ser	aag Lys 420	ctg Leu	agc Ser	gat Asp	gcg Ala	gtc Val 425	gag Glu	tgt Cys	ctg Leu	cgc Arg	ggc Gly 430	aag Lys	gat Asp	1296
ccg Pro	cac His	gtg Val 435	ctg Leu	gtc Val	aac Asn	aac Asn	gag Glu 440	tgg Trp	ggc Gly	acg Thr	ctc Leu	ggc Gly 445	att Ile	tgc Cys	gag Glu	1344
ttc Phe 450	ccg Pro	ttc Phe	gtg Val	ccg Pro	gtg Val 455	gtc Val	gac Asp	ggt Gly	gcg Ala	ttc Phe	ctg Leu 460	gac Asp	gag Glu	acg Thr	ccg Pro	1392
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ctg Leu	cag Gln	gcg Ala 515	gtg Val	cgc Arg	gag Glu	ctc Leu	aac Asn 520	ccg Pro	tac Tyr	gtg Val	aac Asn	ggg Gly 525	gcg Ala	gcc Ala	cgg Arg	1584
cag Gln 530	gcg Ala	atc Ile	gtg Val	ttc Phe	gag Glu	tac Tyr 535	acc Thr	gac Asp	tgg Trp	acc Thr	gag Glu 540	ccg Pro	gac Asp	aac Asn	ccg Pro	1632
aac Asn 545	agc Ser	aac Asn	cgg Arg	gac Asp	gcg Ala 550	ctg Leu	gac Asp	aag Lys	atg Met	gtg Val 555	ggc Gly	gac Asp	tat Tyr	cac His	ttc Phe 560	1680

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aac gtc tac atg tat ctg tac acg cac cgc agc aaa ggc aac ccg tgg	1776	
Asn Val Tyr Met Tyr Leu Tyr Thr His 585	Arg Ser Lys Gly Asn 590	
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Pro Arg Trp Thr Gly Val Met His 600	Gly Asp Glu Ile Asn Tyr Val Phe 605	
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Gly Glu Pro Leu Asn Pro Thr 615	Gly Tyr Thr Glu Asp Glu Lys Asp 620	
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Phe Ser Arg Lys Ile Met Arg Tyr Trp Ser Asn Phe Ala Lys Thr Gly 625 630 635 640		
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Asn Pro Asn Pro Asn Thr Ala Ser Ser Glu Phe Pro Glu Trp Pro Lys 645 650 655		
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His Thr Ala His Gly Arg His Tyr Leu Glu Leu Gly Leu Asn Thr Ser 660 665 670		
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Tyr Leu Pro Gln Leu Val Ala Ala Thr Ser Asn Leu Pro Gly Pro Ala 690 695 700		
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Pro Pro Ser Glu Pro Cys 710	Glu Ser Ser Ala Phe 715	
ctg atc gtg ctg ctg gtg tcg ctg ctt acg gcg acc gtc aga ttc ata	2208	
Leu Ile Val Leu Leu Val Ser Leu Leu Thr 725 730 735		
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Gln		

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 <212> PRT
 <213> Anopheles gambiae strain YAO

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 Pro Pro Ser Ala Leu Val Gln Gly Arg His His Glu Leu Asn Asn Gly
 35 40 45

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Ala Ala Ile Gly Ser His Gln Leu Ser Ala Ala Ala Gly Val Gly Leu
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Ser Ser Gln Ser Ala Gln Ser Gly Ser Leu Ala Ser Gly Val Met Ser
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Ser Val Pro Ala Ala Gly Ala Ser Ser Ser Ser Ser Ser Leu Leu
85 90 95
Ser Ser Ser Ala Glu Asp Asp Val Ala Arg Ile Thr Leu Ser Lys Asp
100 105 110
Ala Asp Ala Phe Phe Thr Pro Tyr Ile Gly His Gly Glu Ser Ala Arg
115 120 125
Ile Ile Asp Ala Glu Leu Gly Thr Leu Glu His Val His Ser Gly Ala
130 135 140
Thr Pro Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Asn Ser Asp Ala
145 150 155 160
Asn Asp Asn Asp Pro Leu Val Val Asn Thr Asp Lys Gly Arg Ile Arg
165 170 175
Gly Ile Thr Val Asp Ala Pro Ser Gly Lys Lys Val Asp Val Trp Leu
180 185 190
Gly Ile Pro Tyr Ala Gln Pro Pro Val Gly Pro Leu Arg Phe Arg His
195 200 205
Pro Arg Pro Ala Glu Lys Trp Thr Gly Val Leu Asn Thr Thr Thr Pro
210 215 220
Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro
225 230 235 240
Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu
245 250 255
Tyr Ile Asn Val Val Ala Pro Arg Pro Arg Pro Lys Asn Ala Ala Val
260 265 270
Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly Thr Ala Thr Leu
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Asp Val Tyr Asp His Arg Ala Leu Ala Ser Glu Glu Asn Val Ile Val
290 295 300
Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly
305 310 315 320
Thr Pro Glu Ala Pro Gly Asn Ala Gly Leu Phe Asp Gln Asn Leu Ala
325 330 335
Leu Arg Trp Val Arg Asp Asn Ile His Arg Phe Gly Gly Asp Pro Ser
340 345 350
Arg Val Thr Leu Phe Gly Glu Ser Ala Gly Ala Val Ser Val Ser Leu
355 360 365
His Leu Leu Ser Ala Leu Ser Arg Asp Leu Phe Gln Arg Ala Ile Leu
370 375 380

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Gln Ser Gly Ser Pro Thr Ala Pro Trp Ala Leu Val Ser Arg Glu Glu
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Ala Thr Leu Arg Ala Leu Arg Leu Ala Glu Ala Val Gly Cys Pro His
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450 455 460
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465 470 475 480
Gly Ser Asn Thr Glu Glu Gly Tyr Tyr Phe Ile Ile Tyr Tyr Leu Thr
485 490 495
Glu Leu Leu Arg Lys Glu Glu Gly Val Thr Val Thr Arg Glu Glu Phe
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Gln Ala Ile Val Phe Glu Tyr Thr Asp Trp Thr Glu Pro Asp Asn Pro
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Thr Cys Asn Val Asn Glu Phe Ala Gln Arg Tyr Ala Glu Glu Gly Asn
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595 600 605
Gly Glu Pro Leu Asn Pro Thr Leu Gly Tyr Thr Glu Asp Glu Lys Asp
610 615 620
Phe Ser Arg Lys Ile Met Arg Tyr Trp Ser Asn Phe Ala Lys Thr Gly
625 630 635 640
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645 650 655
His Thr Ala His Gly Arg His Tyr Leu Glu Leu Gly Leu Asn Thr Ser
660 665 670
Phe Val Gly Arg Gly Pro Arg Leu Arg Gln Cys Ala Phe Trp Lys Lys
675 680 685
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690 695 700
Pro Pro Ser Glu Pro Cys Glu Ser Ser Ala Phe Phe Tyr Arg Pro Asp
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 :
 Gln :

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 <213> Artificial sequence

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 20 25 30
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 Ser Ser Gln Ser Ala Gln Ser Gly Ser Leu Ala Ser Gly Val Met Ser
 65 70 75 80
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 Ser Val Pro Ala Ala Gly Ala Ser Ser Ser Ser Ser Ser Ser Leu Leu

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Ala	Asp	Ala	Phe	Phe	Thr	Pro	Tyr	Ile	Gly	His	Gly	Glu	Ser	Val	Arg	
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Ile	Ile	Asp	Ala	Glu	Leu	Gly	Thr	Leu	Glu	His	Val	His	Ser	Gly	Ala	
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Thr	Pro	Arg	Arg	Arg	Gly	Leu	Thr	Arg	Arg	Glu	Ser	Asn	Ser	Asp	Ala	
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Asn	Asp	Asn	Asp	Pro	Leu	Val	Val	Asn	Thr	Asp	Lys	Gly	Arg	Ile	Arg	
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Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Val	Gly	Pro	Leu	Arg	Phe	Arg	His	
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Tyr	Ile	Asn	Val	Val	Ala	Pro	Arg	Pro	Arg	Pro	Lys	Asn	Ala	Ala	Val	
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Asp	Val	Tyr	Asp	His	Arg	Ala	Leu	Ala	Ser	Glu	Glu	Asn	Val	Ile	Val	
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Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	Leu	Phe	Leu	Gly	
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acc	ccg	gaa	gca	ccg	ggc	aat	gca	gga	ctg	ttc	gat	cag	aac	ctt	gca	1008
Thr	Pro	Glu	Ala	Pro	Gly	Asn	Ala	Gly	Leu	Phe	Asp	Gln	Asn	Leu	Ala	
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